Remarks/Arguments:

The above Amendments and these Remarks are in reply to the Office Action mailed October 1, 2003.

Claims 1-20 were pending in the Application prior to the outstanding Office Action. In the Office Action, the Examiner rejected pending claims 1-20. This response amends claims 1 and 11, and cancels claims 10 and 14, leaving claims 1-9, 11-13, 15-20 for consideration.

The Examiner maintained his rejection of claims 1, 10-11 and 14 under 35 USC 102 as being anticipated by Shalapenok et al (U.S. Patent 6081381). We respectfully disagree.

Shalapenok's invention is based on the use of a rotating microlens array having a rotational speed chosen with reference to parameters of the coherent light source. Col. 3, lns 12-15. A microlens array is formed by assembling a plurality of individual microlenses into a single unit or by etching the lens from a single block of optical material. Col. 35-42. A microlens can be either refractive or diffractive, but Shalapenok only teaches the use of refractive lens. In the device taught, the light source is placed behind the lens array with the light beam passing through the rotating micronlens array 18. Col. 4, ln 67- col. 5, ln 1. See Shalapenok Fig 1.

The use of conventional optical diffusers such as microlenses has significant drawbacks at EUV wavelengths. Fabrications of direct analogs to ground glass for use at EUV wavelengths has a high attenuation imparted by all effective phase shift materials. Additionally, this is challenging from a fabrication point of view since precise three-dimensional lithography of esoteric materials would be required. This is compounded with the use of multiple lens in fabricating the microlens array.

The instant invention overcomes these problems by the use of a holographic diffuser. The holographic diffuser affects the phase through a diffractive process instead of a refractive process. In the holographic diffuser the desired random or pseudo-random phase pattern is encoded into line positions, or phase, of a carrier grating. The local temporal phase of the light

diffracted from a grating type structure is directly proportional to the local spatial phase of the grating itself. By propagating light through a periodic spatial carrier structure and randomly varying the spatial phase, the diffracted beams of light will incur spatially varying random phase shifts. See Application, Paragraph [00031].

The instant invention further teaches the use of reflection gratings in the holographic diffuser. This results in tremendous improvement in diffraction efficiency compared to using transmission diffusers. See Application Paragraph [0033].

Further, Shalapenok required rotating the microlense array at a rapid speed. It disclosed that for excimer lasers the linear speed obtained during rotation is practically unattainable for the microlenses near the center of the array. Col 6, lns 15-25, lns-35-40. Shalapenok even recommends closing the central microlens or even a certain range of central lenses in the array. This is not a problem for the instant invention. In the instant invention, the holographic diffuser is moved in two dimensions. The diffuser is translated linearly in the plane of the holographic surface, and the speed of the translation only need to be rapid enough that many correlation lengths of the diffuser are spanned during the imaging systems exposure time. See Application Paragraph [0029]. The entire surface of the diffuser is used, resulting in greater efficiency than the rotating array taught by Shalapenok.

We submit that Shalapenok does not teach or render obvious the use of diffractive and reflective holographic diffusers moved in two dimensions, which overcome the shortcomings of using conventional optical diffusers like microlens arrays.

Applicant has amended independent claims 1 and 11 to distinctively claim his invention. The limitations of dependent claim 10 is incorporated into independent claim 1, and the limitations of dependent claim 14 incorporated into independent claim 11. Support for the amended claims can be found in paragraph [0035] of the application. Applicant respectfully request re-consideration.

The Examiner further maintained rejection of dependent claims 2-10, 12- 20 U.S.C 103(a) as being unpatentable over Shalapenok et al, in view of cited secondary references.

Applicant submits that even if the secondary references teach the art as suggested by the Examiner, these secondary references do not cure the above-discussed deficiencies of the Shalapenok patent.

The references cited by the Examiner but not relied upon have been reviewed, but are not believed to render the claims unpatentable, either singly or in combination.

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and a Notice of Allowance is requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: Dec 30, 2003

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